



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,432	03/31/2004	Michael Ravkin	LAM2P463	8820

25920 7590 03/08/2005

MARTINE PENILLA & GENCARELLA, LLP  
710 LAKEWAY DRIVE  
SUITE 200  
SUNNYVALE, CA 94085

EXAMINER
----------

CARRILLO, BIBI SHARIDAN

ART UNIT	PAPER NUMBER
----------	--------------

1746

DATE MAILED: 03/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/816,432

Applicant(s)

RAVKIN ET AL.

Examiner

Sharidan Carrillo

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 17-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-23 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3312004, 07062004.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-16, drawn to a method of cleaning and drying the front and back surface of a substrate, classified in class 134, subclass 6.
  - II. Claims 17-23, drawn to an apparatus, classified in class 15, subclass 77.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the apparatus can be used with a different method which does not require forming a meniscus on the substrate, such as polishing.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Ms. Courtney Yadigar on 3/3/05 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-16. Affirmation of this election must be made by applicant in replying to this Office action. Claims 17-20 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Art Unit: 1746

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1-16 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for semiconductor devices, does not reasonably provide enablement for any type of substrate. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

The claims embrace an invention which contains any known substrate, which could/can be selected from literally thousands. It does not appear feasible that any substrate would function in the present invention. Further, for one skilled in the art to reproduce the present invention (which must be possible, if the specification is adequate), there would clearly be undue experimentation to do so in an attempt to figure out which substrates work and which ones do not.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is indefinite because it is not clear what is meant by brush scrubbing fluid chemistry. How can one scrub the back surface of the substrate with “chemistry”. Claim 1 is further indefinite because it is unclear what is meant by “scanning” the surface of the substrate with the front and back meniscus. Paragraph 65 of the specification teaches the movement of the front and back meniscus along the surface. It is unclear whether the scanning step means the same as the movement of the front and back meniscus along the surface. Additionally, it is unclear what is meant by the meniscus including a chemistry that is compatible with the brush scrubbing fluid chemistry. Is the scanning performed with a fluid “this is compatible with the brush scrubbing fluid chemistry”. What would be considered as compatible fluids? Paragraph 14 teaches incompatible chemistries such as SC1 and HF...used to clean wafer backside and front side”. However, paragraphs 31 and 51 teaches compatible chemistries are solutions of HF. Claim 1 is further indefinite because the preamble recites a method for cleaning and drying and the claim fails to recite a step of drying. Claim 2 is indefinite because it is unclear what chemistry is compatible with the brush scrubbing fluid chemistry. Additionally, it is unclear what is meant by the chemistry of the front and back meniscus. Does the chemistry refer to only fluids which when applied to the substrate surface forms a meniscus or does the chemistry include a fluid and other liquid contaminants previously present on the substrate surface which forms a meniscus. Claim 3 is indefinite because it is unclear what is meant by “front side”film. Claim 4 is indefinite because it is unclear how something can occur “substantially”

Art Unit: 1746

simultaneously. Claims 5 and 16 are indefinite for similar reasons with respect to the language of substantially synchronously. Claim 16 is also indefinite for the term “scanning” as previously discussed. Claim 6 is indefinite because it is unclear what is meant by front and back cleaning chemistry. How can a meniscus include a chemistry. A meniscus can include a fluid but not a chemistry. Claim 8 is indefinite for the term “front cleaning chemistry”. Claim 10 is indefinite for similar reasons as that of claim 1. Claim 10 further fails to include a drying step. The phrase “brush scrubbing fluid chemistry, front cleaning chemistry, and the front cleaning chemistry being chemically compatible with the brush scrubbing fluid chemistry” are indefinite for similar reasons as that of claim 1. Claims 11 and 13 are indefinite because it is unclear what is meant by scanning. Claim 12 is indefinite because of the terms “back cleaning chemistry, the back cleaning chemistry being compatible with the brush scrubbing fluid chemistry. How can a meniscus include a chemistry and what would be considered as “chemically compatible. Claim 14 is indefinite because of the terms “front and back chemistry” and “configured to be compatible” since it is unclear what is compatible based on the inconsistencies in the specification.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Buk et al. teach cleaning the back surface and forming a meniscus on the back surface. Woods teaches processing a substrate with a meniscus. Boyd et al. teach cleaning with megasonic power. De Larios et al. teach cleaning and drying of substrates. Garcia teaches a liquid meniscus.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharidan Carrillo whose telephone number is 571-272-1297. The examiner can normally be reached on Monday-Friday, 6:00a.m-2:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sharidan Carrillo  
Primary Examiner  
Art Unit 1746

bsc



SHARIDAN CARRILLO  
PRIMARY EXAMINER